

Ten New Species of Phytoseius (Pennaseius) from Mexico, Trinidad, and British Guiana with a Key to Species (Acarina: Phytoseiidae)¹

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The species considered in this paper belong to the sub-genus *Pennaseius* Pritchard and Baker, 1962. Schuster and Pritchard (1963) raised the group to generic rank, but this ranking doesn't seem warranted to me. These mites are whitish, not very fast moving, and are commonly found on leaves of trees and shrubs. Although they are considered to be predacious, I have never observed them feeding, but have occasionally taken them from plants on which I saw no other mites. They may be facultative predators because Chant (1959) shows that some species in other genera of the family feed not only on other mites, but also on pollen, fungi, and plant juices.

In the descriptions, I have followed Garman (1948) in the designation of setae as his system seems less cumbersome for the phytoseiids than more recent proposals. In several of the new species, some or all of the shields of the ventral surfaces of the specimens at hand are so indistinct drawings could not be made. The descriptions and drawings are of holotype females except for the spermatodactyls which are of paratype males. All measurements are in microns. Leg measurements are from base of coxa to claw-end of pretarsus; tarsal measurements include the pretarsus.

KEY TO SPECIES OF SUB-GENUS *Pennaseius*

(Females except for *floridanus* Muma)

1. Dorsal shield with a pore close to base of M1 2
Dorsal shield without a pore close to base of M1 15
2. Genu IV without a greatly differentiated seta (Figs. 1-6) . . . 3
Genu IV with a greatly differentiated seta (Figs. 7-10) . . . 9
3. L4 much shorter than L3 (about $\frac{1}{2}$ as long or less) 4
L4 about as long as or longer than L3 8

¹ Cost of engravings paid for by a grant from the Pinellas Foundation, St. Petersburg, Florida.

4. D5 absent.....5
 D5 present.....6
5. L4 much less than $\frac{1}{2}$ as long as L3; macroseta of basitarsus IV with tip capitate.....**purseglovei**, n. sp. (Trinidad)
 L4 about $\frac{1}{2}$ as long as L3; macroseta of basitarsus IV with tip pointed.....**orizaba**, n. sp. (Mexico)
6. Cervix goblet-shaped (Fig. 3)..**bennetti**, n. sp. (Trinidad)
 Cervix funnel-shaped (Figs. 4 & 5).....7
7. Peritreme reaching forward to a point nearly in front of D1; macroseta of basitarsus IV blunt or else slightly capitate.....**nahuatlensis** DeL., 1959 (Mexico)
 Peritreme reaching forward to a point about over middle of coxa I; macroseta of basitarsus IV tapering to a slender point.....**montanus** n. sp. (Mexico)
8. Pore close to base of M1 conspicuous; M1 much shorter than D4.....♂ **floridanus** Muma, 1962 (Florida)
 Pore close to base of M1 inconspicuous; M1 not much shorter than D4.....**rhabdifer**, n. sp. (Trinidad)
9. L1 longer than L3; L5 about as long as or longer than L6.....10
 L1 shorter than L3; L5 shorter than L6.....12
10. Macroseta of basitarsus IV longer than that of tibia IV....**amba** Pritchard & Baker, 1962 (Belgian Congo)
 Macroseta of basitarsus IV shorter than that of tibia IV...11
11. M2 about as long as L7; macrosetae of leg IV with tips blunt..**minutus** Narayanan, Kaur, & Ghai, 1960 (India)
 M2 about $\frac{1}{4}$ to $\frac{1}{5}$ longer than L7; macrosetae of leg IV with tips expanded.....**hongkongensis** Swirski & Shechter, 1961 (Hong Kong)
12. Pore close to base of M1 rather inconspicuous; D2 not minute (over 13 microns long) and longer than L2; 2 pairs of preanal setae.....**paludis**, n. sp. (Mexico)
 Pore close to base of M1 conspicuous; D2 minute (less than 9 microns long) and about as long as or shorter than L2; 3 pairs of preanal setae.....13
13. Cervix goblet-shaped; L1 not reaching to base of D2.....**averrhoae**, n. sp. (British Guiana)
 Cervix funnel-shaped; L1 reaching beyond base of D2...14
14. L3 reaching to well beyond base of L5; L6 reaching considerably more than half-way to base of L7.....**mantecanus**, n. sp. (Mexico)
 L3 not reaching to base of L5; L6 reaching only about half-way to base of L7.....**cismontanus**, n. sp. (Mexico)
15. D5 reaching to base of M2 and longer than L7.....**decoratus** González & Schuster, 1962 (Chile)

- D5 much shorter than $\frac{1}{2}$ the distance to M2 and much shorter than L7.....16
16. L4 about as long as or longer than L3.....
**guianensis**, n. sp. (British Guiana)
- L4 much shorter than L3.....17
17. D5 less than 10 microns long; peritreme reaching forward to a point about in front of D1; cervix funnel-shaped, about 21 long.....**mexicanus** DeL., 1960 (Mexico)
- D5 more than 17 microns long; peritreme reaching forward to a point about over middle of coxa I; cervix goblet-shaped, about 13 long.....
**finitimus** (Ribaga)² (Italy, Russia, California)

Phytoseius purseglovei, n. sp. (Figure 1)

FEMALE: Dorsal shield 251 long, 117 wide with setae arranged as shown in Figure 1. Lengths of setae as follows: L1 30, L2 9, L3 37, L4 11, L5 45, L6 59, L7 51; S1 31; D1 14, D2 7, (D5 absent); M2 45. Leg I 271, III 202, IV 302 long; tarsus IV 121 long, macroseta of basitarsus 21 long; at least 2 dorsal setae of genu IV and of tibia IV are very slightly capitate. Cervix of spermatheca about 10 long.

MALE: Dorsal shield 191 long, 106 wide; spermatodactyl with foot about 7 long, shank about 11 long (for definition of these parts see De Leon (1961)).

Holotype: Female, Curepe, TRINIDAD, West Indies, September 28, 1963 (D. De Leon), from *Carica papaya*. *Paratypes*: One male, collected with holotype; 1 female, St. Augustine, Trinidad, September 14, 1963, from *Cordia curasavica*; 2 males, 1 female, St. Augustine, Trinidad, October 18, 1963 (M. Bhorai), from *Cecropia peltata*. The mite is named in honor of Professor J. W. Purseglove, Department of Botany, University of the West Indies, St. Augustine, Trinidad.

Phytoseius orizaba, n. sp. (Figure 2)

FEMALE: Dorsal shield 259 long, 128 wide with setae arranged as shown in Figure 2. Lengths of setae as follows:

² I have followed Pritchard and Baker (1962) where they indicate that *Phytoseius finitimus* (Ribaga) should be the name for the mites called *P. plumifer* (C. and F.) by Chant (1959) and others.

L1 33, L2 11, L3 41, L4 21, L5 46, L6 56, L7 52; S1 29; D1 17, D2 10, (D5 absent); M2 43. Leg I 277, II 195, III 185, IV 320 long; tarsus IV 126 long, macroseta of basitarsus 25 long and ending in a slender point. Cervix of spermatheca about 9 long.

MALE: Dorsal shield 206 long, 119 wide. Spermatodactyl with shank about 13 long, foot about 8 long.

Holotype: Female, Cordoba, Veracruz, MEXICO, February 4, 1957 (D. De Leon), from *Heliocarpus tomentosus*. *Paratypes*: One female and 1 male taken with holotype.

Phytoseius bennetti, n. sp. (Figure 3)

FEMALE: Dorsal shield 247 long, 121 wide with setae arranged as shown in Figure 3. Lengths of setae as follows: L1 28, L2 8, L3 38, L4 11, L5 42, L6 53, L7 49; S1 33; D1 16, D2 8; M2 42. Leg I 257, II 208, III 193, IV 299 long; tarsus IV 118 long, macroseta of basitarsus 21 long. Cervix of spermatheca about 7 long.

Holotype: Female, Manzanilla Bay, TRINIDAD, October 3, 1963 (F. D. Bennett), from *Hibiscus tiliacca*. *Paratype*: One female taken with holotype. The mite is named in honor of Dr. F. D. Bennett, Commonwealth Institute of Biological Control, Curepe, Trinidad.

Phytoseius nahuatlensis De Leon, 1959 (Figure 4)

As leg IV and the cervix of the spermatheca of the type specimen were not illustrated in the original description, they are given here to aid comparison. Macroseta of basitarsus 25 long; cervix of spermatheca about 17 long; shank of spermatodactyl about 13 long, foot about 9 long. In the original description it was mentioned that several species may have been placed under one name. The complex has been restudied and now only the specimens from Tuxtla Gutierrez bear this name; the other species are distinguished by the characters given in the key. The species discussed under this name by Chant and Athias-Henriot (1960) appears to be unnamed.

Phytoseius montanus, n. sp. (Figure 5)

FEMALE: Dorsal shield 271 long, 132 wide with setae arranged as shown in Figure 5. Lengths of seta as follows: L1 34, L2 13, L3 35, L4 17, L5 51, L6 63, L7 60; S1 32; D1 17, D2 15, D3 10; M2 39. Ventrianal shield 91 long, with narrow waist and 3 pairs of preanal setae. Leg I 282, II 228, III 207, IV 324 long; tarsus IV 126 long, macroseta of basitarsus 25 long. Cervix of spermatheca about 14 long.

Holotype: Female, 9 mi. south of Guadalajara, Jalisco, MEXICO, March 22, 1957 (D. De Leon), from *Hyptis albida*. *Paratypes*: Two females, Jocotepec, Jalisco, March 22, 1957, from shrub; five females from 2 unrecognized trees, Santa Maria del Oro, Nayarit, Mexico, March 24, 1957.

Phytoseius rhabdifer, n. sp. (Figure 6)

FEMALE: Dorsal shield somewhat rugose, 246 long, 139 wide with setae arranged as shown in Figure 6. Lengths of setae as follows: L1 21, L2 16, L3 28, L4 24, L5 31, L6 35, L7 38 (most of these setae rod-shaped); S1 25; D1 15, D2 15; M2 25. Leg I 271, II 215, III 190, IV 304 long; tarsus IV 110 long, macroseta of basitarsus 17 long. Cervix of spermatheca about 7 long.

Holotype: Female, St. Augustine, TRINIDAD, September 18, 1963 (D. De Leon), from *Castilloa elastica*. *Paratypes*: One female, St. Augustine, September 21, from *Pithecolobium saman*, and 1 female, Tunapuna, Trinidad, September 25 from an unrecognized tree.

Phytoseius paludis, n. sp. (Figure 7)

FEMALE: Dorsal shield 246 long, 115 wide with setae arranged as shown in Figure 7. Lengths of setae as follows: L1 34, L2 7, L3 38, L4 14, L5 45, L6 63, L7 51; S1 31; D1 17, D2 14, D3 11; M2 39. Leg I 272, II 211, III 196, IV 332 long; tarsus IV 126 long; macroseta of genu IV 21, of tibia IV 18, and of basitarsus IV 22 long. Cervix of spermatheca about 10 long.

Holotype: Female, Veracruz, Veracruz, MEXICO, December 25, 1956 (D. De Leon), from *Guazuma tomentosa*. *Paratypes*: Four females, Veracruz, January 1, 1957, from *Phaseolus atropurpureus*; 1 female, Cuitlahuac, Veracruz, February 5, 1957, from *Luchea candida*.

Phytoseius averrhoae, n. sp. (Figure 8)

FEMALE: Dorsal shield 249 long, 121 wide with setae arranged as shown in figure 8. Lengths of setae as follows: L1 25, L2 9, L3 35, L4 12, L5 40, L6 52, L7 49; S1 31; D- 18, D2 8; M2 47. Leg I 289, II 226, III 219, IV 320; tarsus IV 121 long; macroseta of genu IV 15, of tibia IV 13, and of basitarsus IV 18 long. Cervix of spermatheca about 10 long.

MALE: Dorsal shield 203 long, 104 wide. Spermatodactyl with foot and shank each about 10 long.

Holotype: Female, Bartica, BRITISH GUIANA, November 3, 1963 (D. De Leon), from *Averrhoa bilimbi*. *Paratypes*: One male and 1 female collected with holotype.

Phytoseius mantecanus, n. sp. (Figure 9)

FEMALE: Dorsal shield 290 long, 135 wide with setae arranged as shown in Figure 9. Lengths of setae as follows: L1 47, L2 10, L3 59, L4 14, L5 76, L6 98, L7 78; S1 47; D1 24, D2 7; M2 66. Legs too bent to measure; tarsus IV 148 long; macroseta of genu IV 28, of tibia IV 26, and of basitarsus IV 25 long. Cervix of spermatheca about 14 long.

EXPLANATION OF FIGURES

FIG. 1. *Phytoseius purseglovei*, n. sp. Dorsal and ventral shields, part of leg IV, cervix of spermatheca, and spermatodactyl.

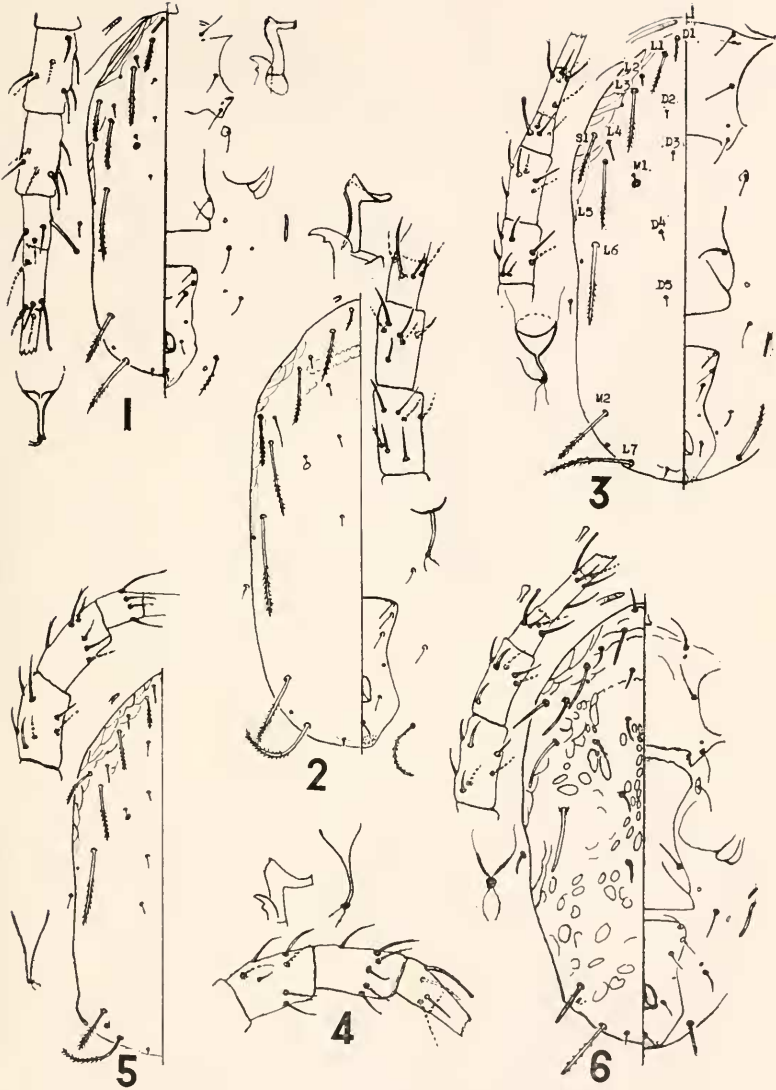
FIG. 2. *Phytoseius orizaba*, n. sp. Dorsal and ventrianal shields, part of leg IV, cervix of spermatheca, and spermatodactyl.

FIG. 3. *Phytoseius bennetti*, n. sp. Dorsal and ventral shields, part of leg IV, and cervix of spermatheca.

FIG. 4. *Phytoseius nahuatlensis* De Leon. Part of leg IV, cervix of spermatheca, and spermatodactyl.

FIG. 5. *Phytoseius montanus*, n. sp. Dorsal shield, part of leg IV, and cervix of spermatheca.

FIG. 6. *Phytoseius rhabdifer*, n. sp. Dorsal and ventral shields, part of leg IV, and cervix of spermatheca.



FIGS. 1-6.

Holotype: Female, Terrazas, S. L. P., MEXICO, December 20, 1956 (D. De Leon), from *Hamelia patens*. *Paratypes*: One female taken with holotype; 4 females from *Guazuma tomentosa*, December 20, 1956, from 2 locations near Mante, Tamaulipas, Mexico.

Phytoseius cismontanus, n. sp. (Figure 10)

FEMALE: Dorsal shield 274 long, 126 wide with setae arranged as shown in Figure 10. Lengths of setae as follows: L1 36, L2 8, L3 43, L4 7, L5 56, L6 72, L7 58; S1 36; D1 18, D2 7; M2 53. Ventrianal shield 80 long, with narrow waist and 3 pairs of preanal setae. Legs too crooked to measure; tarsus IV 141 long, macroseta of genu IV 22, of tibia IV 20, and of basitarsus IV 19 long. Cervix of spermatheca about 14 long.

MALE: Dorsal shield 213 long, 127 wide. Spermatodactyl with foot about 10 long, shank about 14.

Holotype: Female, Ixtlan del Rio, NAYARIT, March 24, 1957 (D. De Leon), from *Hyptis albida*. *Paratypes*: One male and 1 female, 6 mi. west of Tepec, Nay., March 25, 1957 from *Inga spuria* and 1 male, 3 females from *Lippia umbellata*. Other specimens were taken from *Oreopanax peltata* and *Persea hintoni* in the same area.

Phytoseius guianensis, n. sp. (Figure 11)

FEMALE: Dorsal shield rugose, 289 long, 148 wide with setae arranged as shown in Figure 11. Lengths of setae as follows: L1 18, L2 17, L3 21, L4 19, L5 28, L6 32, L7 40; S1 25; D1

EXPLANATION OF FIGURES

FIG. 7. *Phytoseius paludis*, n. sp. Dorsal and ventrianal shields, part of leg IV, and cervix of spermatheca.

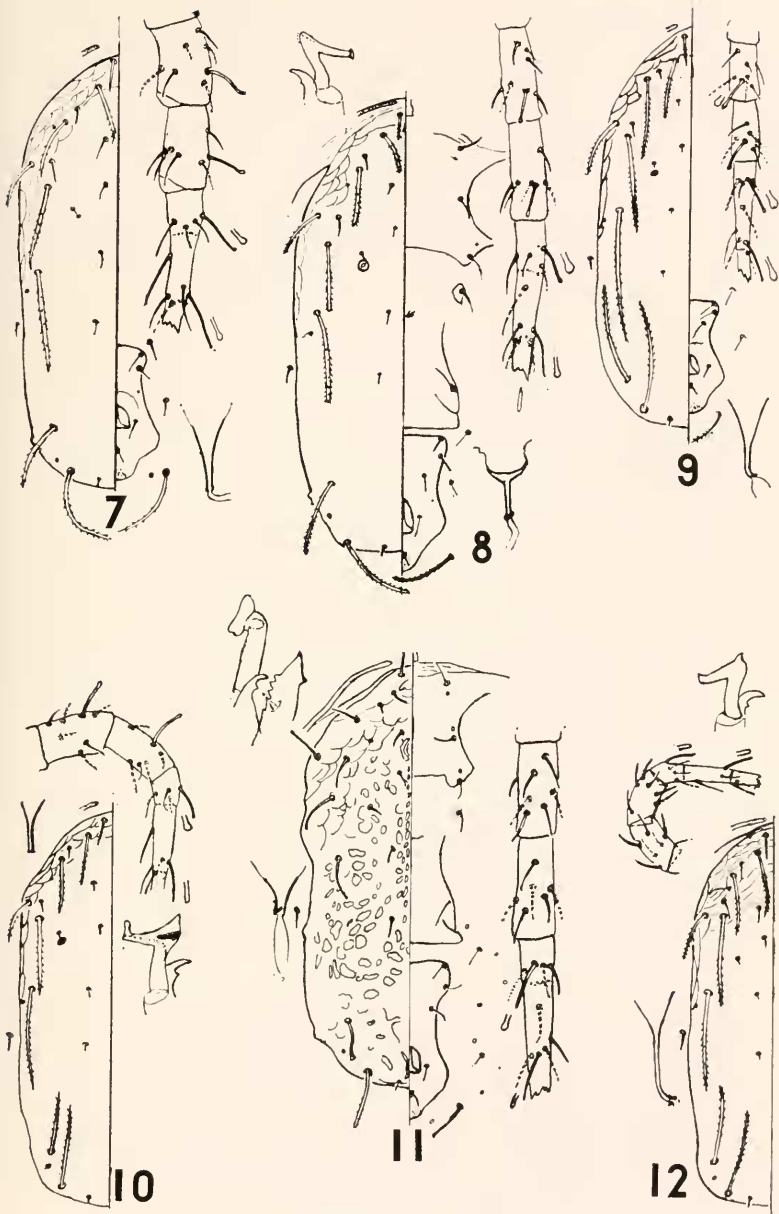
FIG. 8. *Phytoseius averrhoae*, n. sp. Dorsal and ventral shields, part of leg IV, cervix of spermatheca, and spermatodactyl.

FIG. 9. *Phytoseius mantecanus*, n. sp. Dorsal and ventrianal shields, part of leg IV, and cervix of spermatheca.

FIG. 10. *Phytoseius cismontanus*, n. sp. Dorsal shield, part of leg IV, cervix of spermatheca, and spermatodactyl.

FIG. 11. *Phytoseius guianensis*, n. sp. Dorsal and ventral shields, part of leg IV, cervix of spermatheca, and spermatodactyl.

FIG. 12. *Phytoseius mexicanus* De Leon. Dorsal shield, part of leg IV, cervix of spermatheca, and spermatodactyl.



Figs. 7-12.

19, D2 14, D3 15; M2 28. Leg I 293, II 243, III 229, IV 342 long; tarsus IV 126 long; macroseta of genu IV 11, of tibia IV 11, and of basitarsus IV 21 long. Cervix of spermatheca about 8 long.

MALE: Dorsal shield 217 long, 152 wide. Spermatodactyl with shank about 20 long, foot not oriented for measuring.

Holotype: Female, Agricultural Exp. Sta., Mon Repos, BRITISH GUIANA, November 5, 1963 (D. De Leon), from *Pueraria phasecoloides*. *Paratypes*: Two males, 4 females collected with holotype.

Phytoseius mexicanus De Leon, 1960 (Figure 12)

As no drawings accompanied the original description they are given here to aid comparison. The cervix of the spermatheca is about 21 long. The shank of the spermatodactyl is about 13 long, the foot about 8 long.

The types of the new species are in the author's collection.

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A New Genus and Species of Oecophoridae (Lepidoptera: Gelechioidea)

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My preliminary work on the Nearctic Gelechiidae reveals that a series of Floridian moths, which I though was gelechiid, is oecophorid. The habitus is that of a gelechiid with the apex of the hindwing produced. However, closer examination shows that vein *1c* is present near the forewing margin, an oecophorid character. The stalking of veins *6*, *7*, and *8* in the forewing is unusual; but *Anchonoma* Meyrick, an Indian oecophorid, also has this character. The male genitalia are distinctly oecophorid (Clarke 1941, 1963; Pierce and Metcalf 1935); the female genitalia are not indicative of familial association.

YMELDIA, n. g. (Figs. 1-5)

Type-species: *Ymeldia janae*, n. sp.

Head: smooth-scaled; tongue scaled basally; labial palpus slightly recurved, reaching vertex, smoothed-scaled, second segment slightly longer than third, apex acute; maxillary palpus folded over base of tongue; eye slightly emarginate below base of antenna; ocellus not visible on fully scaled head; antenna simple, two-thirds to three-fourths length of forewing, that of male thicker than that of female, pecten absent. Forewing: lanceolate; eleven veins present; *1b* furcate basally; *1c* weakly developed distally; *2* absent; *4* closer to *3* than to *5* basally;

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